

Third West Weekly Report Shepherd, Michael

Joyce Ackerman, 'Craig Barnitz (cbarnitz@utah.gov)'

03/08/2012 03:43 PM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@PacifiCorp.com>

To: Joyce Ackeman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)" <cbarnitz@utah.gov>

8 Attachments

Weekly Report 02-27 to 03-03-12.pdf Third West Weekly Log 2012-09.pdf 230661-1.pdf 230706-1.pdf 230780-1.pdf

230882-1.pdf 230983-1.pdf 231070-1.pdf

Joyce & Craig,

Attached are the reports for the week of February 27, 2012.

All air monitoring results came back negative.

Please let me know if you have any questions.

Thanks,

Mike Shepherd **Project Manager Rocky Mountain Power - Major Projects** 801.220.4584 Office 801.631.1310 Cell 801.220.2797 Fax michael.shepherd@pacificorp.com



NA

determined necessary



3rd West Substation Remediation Project HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

		DAILT CHECKLIST
DATE	C:	02/27/11
<u>G</u>	<u>eneral</u>	
NA	A Work a	area Health and Safety Inspection
NA	4	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
		activities for the day
N/	A .	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
N	4	Site hazard and safety instruction for all first time employees, contractors or visitors
N/		Complete Employee Meeting Record Form B (where applicable)
NA NA		Document required Respirator Training completion with Form H
NA NA	_	Record times and numbers of dump trucks and trailers as they leave the site with
1 12 1		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
. 17.1		manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	\square	Exclusion zone operations are practiced as instructed.
	_	Decontamination unit is working properly.
		✓ Workers are using decontamination unit as instructed.
		✓ Workers use personal protective equipment properly.
		Workers use personal protective equipment property.
Ø		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation
		sites and track out prevention.
\checkmark		Review sign-in/sign-out log throughout and at the end of the workday.
$\overline{\mathbf{A}}$	•	Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil C	onfirmation sampling for any newly excavated areas
$\overline{\mathbf{V}}$		Stationary Air Monitoring during contaminated soil removal around the perimeter of the
		exclusion zone
N.	A	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
		removal

Digitally photograph each sample location and at any place field sampling personnel





Ø	Electronically file photo files into the on-site database
	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
. ☑	Logbook
\square	On-site computer database
$\overline{\mathbf{Q}}$	Label each sample media with a unique number
\square	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental
	Samples
\square	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 02/27/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: _Justin Kargis	Title:

		In Compliance	Out of Compliance] N/A	Corrective Action Taken and
Standard 1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	Date
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			-

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			X.	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x	3		

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			2
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	X			
1926.602 (a)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	-
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

No exclusion zone work done today.

Pedersen set switchgear building on pad. Wagstaff and IRH sub contracted for crane and heavy lift work.

Newman altered EZ boundary in 46 kV duct bank trench to allow for working around 46 kV vaults. Wind over weekend had blown EZ fencing over and Newman worked on resetting panels.

CVE fabricators removed forms from stem structures in bay 2 area.

CVE line crew erected structure steel in bay 1.

Weather was dry and mostly sunny with highs in the low 40's. Winds increased in the afternoon.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP NA Site hazard and safety instruction for all first time employees, contractors or visitors NA Complete Employee Meeting Record Form B (where applicable) NA Document required Respirator Training completion with Form H NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material. NA Confirm return of waste material manifest documents for each load with site manager. NA Complete all CSHASP Forms (for applicable activities planned for that day) NA Illness/Injury Report Form A NA Site-Specific Training Record Form C NA Hot Work Permit Form D NA Trench/Evacuation Permit Form E NA Combined Space Entry Permit From F Exclusion zone operations are practiced as instructed. Decontamination unit is working properly. Workers are using decontamination unit as instructed. Workers use personal protective equipment properly. Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation. Observe control measures for dust and fingitive materials i.e. watering excavation sites and track out prevention.	DAȚE	:	02/28/11
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samples to
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Project: 3rd West Sub Station	Date: 02/27/12		
Location: 3rd West, 1st South, SLC	Job Number:		
Survey Conducted By: _Justin Kargis	Title:		

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
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1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
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1926.100 (a)	Head protection, where there is a possible danger of head injury.	x	29		

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1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
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1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x	780		
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.		5	x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	* ***
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x	3		
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

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1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х	5		
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a)	Bi-directional earth moving equipment shall have audible alarms.	х		_	
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.	8		х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

No exclusion zone work done today.

Pedersen worked on the switchgear building equipment and assembly.

Newman began backfilling and compaction in the bay 2 area.

CVE fabricators worked on forming walls and flow fill area around 46 kV vaults. Newman had covered most of this area with plastic with some areas of exposed native soil where the fabricators had to set forms and supports.

CVE line crew continued erecting structure steel in bay 1 area.

R&R conducted 4-hour asbestos awareness training for CVE line crew. 5 linemen completed the class. Morning snowfall with little accumulation. Breezy in the afternoon with mostly cloudy skies and highs in the upper 30s.



NA

NA

determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

		<u>DAILY CHECKLIST</u>
DATE	E :	02/29/11
	<u>eneral</u>	
		area Health and Safety Inspection
N 2	A	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
Ø		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
N	A	Site hazard and safety instruction for all first time employees, contractors or visitors
N.	A	Complete Employee Meeting Record Form B (where applicable)
N.	A	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
· NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Comp	lete all CSHASP Forms (for applicable activities planned for that day)
1171	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	NA.	
	Ι <u>Α</u> Ί	Exclusion zone operations are practiced as instructed.
		Decontamination unit is working properly.
		Workers are using decontamination unit as instructed.
		☑ Workers use personal protective equipment properly.
Ø		Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
		Observe control measures for dust and fligitive materials i.e. watering excavation
		sites and track out prevention.
\square		Review sign-in/sign-out log throughout and at the end of the workday.
☑		Secure the site at the end of the workday
<u>Sa</u>	mpling	·
NA ☑	Soil C	onfirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the
		ovalusion zona

Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil

Digitally photograph each sample location and at any place field sampling personnel





Ø	Electronically file photo files into the on-site database
	Complete Field Documentation
Ø	Field Sample Data Sheets (FSDS)
Ø	Logbook
\square	On-site computer database
\square	Label each sample media with a unique number
\square	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
\square	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 02/29/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: <u>Justin Kargis</u>	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.	н		х	, , ,
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

Standard	Title	In Compliance	Out of Compliance	□ N/A	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	3
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	-
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	8		x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			X	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.	3		х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

] In Compliance	Out of Compliance] N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

No exclusion zone work done today.

Bi-weekly meeting included discussions about covering exposed native soil outside the EZ, 4-hour training of CVE line crew, and EZ fencing that needs repair.

EZ fencing had been blown down in various areas by overnight winds.

Newman backfilled and compacted in bay 2 area.

CVE poured flow fill and concrete around 46kV vaults and trench.

Weather was breezy and cloudy with highs around 40. Afternoon snow flurries changing to showers later in the afternoon.



Project: 3rd West Sub Station	Date: 03/01/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By:	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	=		х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	,		х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			,

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.		**	х	
1926.1053 (b)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	9
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			,
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.	×	1	x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	X.		х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone active once excavation began.

New overnight snowfall of around 2".

Newman demolished the old control building and stockpiled the debris with native material. They left for the day before 12 noon but did not close off the EZ fencing on the south side. R&R and Kenny Construction placed fencing panels to close the EZ in the afternoon. EZ fencing blown over by wind had not been repaired when Newman left the sub station.

CVE fabricators poured FTB in conduit trenches. This work placed workers in close proximity to exposed native material. Solutions for this issue were discussed with CVE fabricators in order to comply and prevent this in the future.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

		DAILY CHECKLIST
)A	TE:	3/012/12
ΝA	General ✓ NA NA NA NA NA NA NA NA	Work area Health and Safety Inspection Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP Site hazard and safety instruction for all first time employees, contractors or visitors Complete Employee Meeting Record Form B (where applicable Document required Respirator Training completion with Form H Record times and numbers of dump trucks and trailers as they leave the site with contaminated material. Confirm return of waste material manifest documents for each load with site manager.
ΙA		lete all CSHASP Forms (for applicable activities planned for that day)
	NA NA NA NA V	Illness/Injury Report Form A Site-Specific Training Record Form C Hot Work Permit Form D Trench/Evacuation Permit Form E Combined Space Entry Permit From F Exclusion zone operations are practiced as instructed. Decontamination unit is working properly. Workers are using decontamination unit as instructed. Workers use personal protective equipment properly.
	☑	Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
	\square	Observe control measures for dust and fugitive materials i.e. watering excavation sites and
	V	track out prevention. Review sign-in/sign-out log throughout and at the end of the workday. Secure the site at the end of the workday
	Sampling	ξ
NA ☑		Soil Confirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
	NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
	NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary
	IJ	Electronically file photo files into the on-site database





Complete Field Documentation \square Field Sample Data Sheets (FSDS) Logbook NA On-site computer database Label each sample media with a unique number Seal sample(s) in zip lock plastic bags Complete and include Chain of Custody (COC) Form required for shipping of samples to \square appropriate laboratory Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples Review and disseminate sample results as received from the laboratories to Project NA Manager and other appropriate managers and employees Electronically file sample reports into on-site database NA



Project: 3rd West Sub Station	Date: 3/02/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: _Justin Kargis	Title:

25. 25.					
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	. /
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			х	
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	e e
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x	×		*
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	,
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			×	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			,
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	2
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			х	9
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			X	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х		1	,
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	· ·
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			x	
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	x		4	

No CVE fabricating crew today.

No exclusion zone work done today.

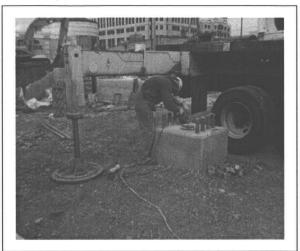
Newman worked on backfilling and compaction in bay 2.

CVE line crew worked on assembling and hanging buss componentry.

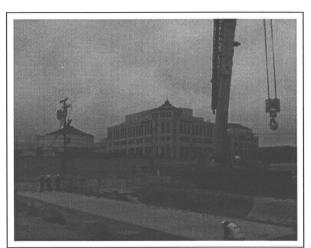
Weather was cool and dry with light winds and temperatures in the high 30s.



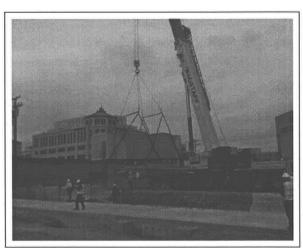
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 02/27/12	FILE:	

SITE PHOTOGRAPHS



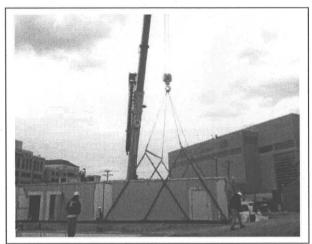
3rd West Substation "2011 Upgrade Project" Salt Lake City, Utah



РНОТО 1



PHOTO 2



РНОТО 3

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY: SCALE: REVIEWED BY: DCR

DRAWN BY: DATE FILE:

JMK 02/27/12

SITE PHOTOGRAPHS



3rd West Substation "2011 Upgrade Project" Salt Lake City, Utah



РНОТО 1



PHOTO 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR			
DRAWN BY: JMK	DATE 02/28/12	FILE:			

SITE PHOTOGRAPHS





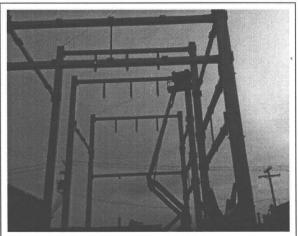
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

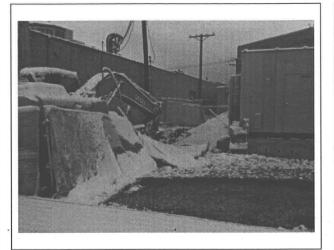
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

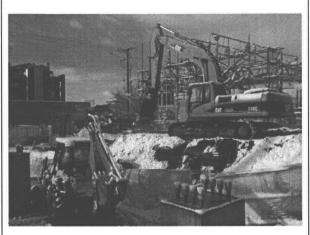
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 02/29/12	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	03/01/12	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & Renvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 03/01/12	FILE:

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3

R & Renvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE: 03/02/12	FILE:	

SITE PHOTOGRAPHS



PROJECT NAME:	: Third West Sub - Rebuild			DATE: Monday, February 27, 201				
PO & Work Order NO. :	3	000078050 / 10035803	MAIN CONT	RACTOR:	Cache Valle	y Electric		
Crew Start Time:	7:00	Crew Stop Time:	18:30)	Tot Hrs mns:	11:30		
FCR Start Time:	6:15	FCR Stop Time:	18:30)	Tot Hrs mns:	12:15		
Use military time format 00:0								
WEATHER CONDITIONS:		Cloudy, 30 degr	ees in AM - 35	degrees in l	PM			
DESCRIPTION: (work per	f orm ed, ge	eneral comments, instructions to	contractor, # c	of crew me	mbers onsite	.)		
foundations in the west yard an area around "E" foundations to placed five columns and three around the "E" foundations. Pe AM. Crane was set up and bui planning on working 7:00 AM to	allow Newn beams in the ederson Cre Iding section 7:30 PM a	early to secure parking for crane and swout concrete under nuts in "G" foundation and to start backfilling on Tuesday. CV e air. Newman Crew wasn't able to down arrived around 8:00 AM, Wagstaff Crans arrived about 11:00 PM and the thrend anticipates being completed sometinding = 1, Pederson Crew = 4, Wagstaff	ns in the east yar E Line Crew unloomuch today as the rane arrived about e sections were some on Sunday, if it	d. Fab Crewaded eight beywere not a t 9:00 AM an et by around	also cleaned u ox structure colu able to start placed IRH arrived al	p excavated umns and cing backfill cout 9:30 erson Crew is		
	· 			18				
IF WORKING IN ENERGIZ		TATION:						
Dispatcher login, name and tim		Swinkski 0615						
Dispatcher logout, name and ti	me: Jim	Bowman 1832						
DISCREPANCIES:			IMMEDIATE C					
•	h bolt projecti	on for "G" and "E" foundations, and base	Columns have bee holes.	n moved to fal	shop for reaming	of base plate		
plate hole size issue		. · ·	noies.					
	ining wall tha	t is below grade and does not show on the	Will excavate to de	termine dimer	nsions.	·		
Demo Plan.								
	tual deoth wil	iting the west side of the yard. Dug 8' and be much deeper than design of new bank	Sent e-mail to Rog	er F.				
		inchor txit/baseplate issue is resolved.						
EQUIPMENT (working, de	live r ed, id	le):						
	forklift, 1 dum	pster, office trailer, conex, exclusion zone c	onex, (2), tool traile	er, crew truck (2), boom truck. N	lewman:		
OSHA Pasardahla Safatu	Incidonto			Reported	hv:	 Time:		
OSHA Recordable Safety	merdents			Neported	<u>∪y.</u> I	Time.		
				 				



PROJECT NAME:	Third West Su	DATE:	Tuesday, February 28, 2012			
PO & Work Order NO. :	3000078050 /	10035803	MAIN CONT	RACTOR	TOR : Cache Valley	
Crew Start Time:	7:00	Crew Stop Time:	17:35	,	Tot Hrs mns:	10:35
FCR Start Time:	6:37	FCR Stop Time:	17:38		Tot Hrs mns:	11:01
Use military time format 00:00					• • • • • • • • • • • • • • • • • • • •	
•						•
WEATHER CONDITIONS:		Rain/Snow, 34 degree	es in AM - Sunn	y, 40 degre	es in PM	
DESCRIPTION: (work perform R&R set up four monitors. R&R prov						
south ends of the 46 kV vaults to allo structure columns and beams in the kV yard. The last lift didn't pass so the breakers in their cabinets. We getaway structure on the south end of 5, Newman = 4, R&R = 1, Wilding =	east yard, with the e hey will roll it again in were visited by Joa of the 46 kV yard wh	xception of two beams. In the morning. Pederson in Thalman, UDOQ to lool ere the transite enclosure	lewman backfilled has completed droped to the completed droped to the building to the building to the complete the complet	and compa ying in the so be demotis	acted two lifts in t switchgear and h	the west 138 as placed a l ed the
IF WORKING IN ENERGIZED S	UBSTATION:					,
Dispatcher login, name and time:	Al Swinkski 0637					
Dispatcher logout, name and time:	Jim Bowman 173	8				
DISCREPANCIES:			IMMEDIATE C	ORRECTIV	/E ACTION TA	KEN:
						
11/30 - Identified an additional retaining \ Demo Plan	wall that is below grade	and does not show on the	Will excavate to de	termine dime	nsions.	ł
Delilo Flatt.						
12/15 - Excavated to locate the 46 kV ca didn't find them. Will try again. Actual de			Sent e-mail to Roge	er F.		
DELAYS OR LOST TIME ENCO		er than design of new bank				
CVE Line Crew has pulled off the site un		plate issue is resolved.				
		•				
		,				
EQUIPMENT () III						g
EQUIPMENT (working, delivered CVE fab crew: Portable toilet (2), forklift,		lor concy evolucion rone o			(2) haars truck 1	
trachoe (4), loader, txxbcat, mini-ex (2), v	, i dumpster, onice trail Vater truck, compactor.	backhoe.	onex, (2), (00) (rape	i, crew truck	(2), boom truck. N	ewillan.
L				•		1
			•			
OSHA Recordable Safety Incid	lents:			Reported	bv:	 Time:
[.,	'	



PROJECT NAME:	Third Wes	DATE:	Wednesday, February 29, 2012			
PO & Work Order NO. :	30000780	050 / 10035803	MAIN CONT	RACTOR :	Cache Valle	y Electric
Crew Start Time:	6:5 0	Crew Stop Time:	19:25	5	Tot Hrs mns:	12:35
FCR Start Time:	6:28	FCR Stop Time:	19:27	•	Tot Hrs mns:	12:59
Use military time format 00:0		•			· -	
WEATHER CONDITIONS:		Cloudy and breezy, 30 c	degrees in AM -	40 degrees	in the PM	
		omments, instructions to				
cyds) over conduits from the so of 46 kV vaults. CVE Line C fittings to the job site and inver additional lifts during the day. bushing ports on top of switche	outh end of the 46 kV rew completed erection ntoried materials. New Pederson continues to gear. Hamid inspecte	ntaining CDF on the east side of vaults to a point approximately on of the 138 kV box stmcture wman added some water and a to work on stitching the sectioned the switchgear and reviewed &R = 1, Wilding = 1, Pederson	y 80' south and pl beams and hung achieved passing s together, both e assembly proces	aced CDF (a 13 insulators tests on the electrically an	ipprox. 10 cyds) s. M obed c o ndu second lift. The id structurally, a	on east sids uit and bus ey added two nd set
IF WORKING IN ENERGIZ	ED SUBSTATION:					
Dispatcher login, name and tin		0628				
Dispatcher logout, name and to	ime: Manny LuHa					
DISCREPANCIES:	<u>·</u>	· · · · · · · · · · · · · · · · · · ·	IMMEDIATE C	ORRECTIV	E ACTION TA	KEN:
•						
· · · · · · · · · · · · · · · · · · ·					-	
			<u>-</u>		_	
11/30 - Identified an additional reta Demo Plan.	aining wall that is below	grade and does not show on the	Will excavate to de	termine dim e n	sions. 	:
		·			_	Ĭ
12/15 - Excavated to locate the 46 didn't find them. Will try again. Ac	tual depth will be much		Sent e-mail to Roge	er F.		
DELAYS OR LOST TIME E		The second secon				
CVE Line Crew has pulled off the	Site until the anchor bolt	roasepiate issue is resolved.				
EQUIPMENT (working, de	liVered, Idle):					
CVE fab crew: Portable toilet (2),	forklift, 1 dumpster, offic	ce trailer, conex , exclusion zone co ader, bobcat, mini-ex (2), water tru			CVE Line Crew:	Pickup (2),
OSHA Recordable Safety	Incidents:			Reported	by:	Time:



PROJECT NAME:	DATE :	Thursday, March 1, 2012				
PO & Work Order NO. :	3000078050	10035803	MAIN CONT	RACTOR :	Cache Valle	y Electric
Crew Start Time:	6:55	Crew Stop Time:	17:20)	Tot Hrs mns:	10:25
FCR Start Time:	6:42	FCR Stop Time:	15:45		Tot Hrs mns:	9:03
Use military time format 00:00					-	
•						
WEATHER CONDITIONS:		Partly Clou	ıdy, 28 degrees	in AM -	_	
DESCRIPTION: (work performe	d. general com	ments, instructions to	contractor. # o	f crew me	mbers onsite	.)
FTB over the 46 kV duct bank from the underhung insulators and placed bus. Mobed additional bus, insulators majority of the building debris to the p around the spread footings. Pedersor switchgear, and made-up other misce 4, R&R = 1, Wilding = 1, Pederson C	bundled insulator s s and misc. materia ille in the north part n installed the bus ellaneous connection	trings on the upper east-w ils to the job site. Newman t of the yard. Newman did connections between the b	rest beams for the n knocked down to not place or com building sections,	wire bus ar he old contr pact materia installed ligl	nd started welding of building and n af in the excavate	ng aluminun noved the ed area face of the
IF WORKING IN ENERGIZED SU		··-				
Dispatcher login, name and time:	Ken Barto 0642					
Dispatcher logout, name and time:	Manny LuHaun 1		IMMEDIATE OF	ODDECTI	/E ACTION TA	
DISCREPANCIES:			IMMEDIATE CO	UKKECII	E ACTION TA	AKEN:
					·	
11/30 - Identified an additional retaining was Demo Plan.	all that is below grade	e and does not show on the	Will excavate to de	termine dimer	nsions.	
12/15 - Excavated to locate the 46 kV cab didn't find them. Will try again. Actual dep			Sent e-mail to Roge	er F.		
DELAYS OR LOST TIME ENCOU				-		
CVE Line Crew has pulled off the site until	I the anchor toolt/base	pplate issue is resolved.				
EQUIPMENT (working, delivered	d. idle\·		•			
CVE fab Crew: Portable toilet (2), forklift, toom truck, JLG (2), tool trailer. Newman	1 dumpster, office tra				CVE Line Crew:	Pickup (2),
OSHA Boordahla Safatu Incida	nte:			Pone-te-d	hve	Timo:
OSHA Recordable Safety Incide	:nt8.			Reported	by:	Time:
	-					



PROJECT NAME:	Third We	DATE: Friday, March 2, 2012				
PO & Work Ordér NO. :	3000078	050 / 10035803	MAIN CONTE	RACTOR	Cache Valle	y Electric
Crew Start Time:	6:55	Crew Stop Time:	16:40		Tot Hrs mns:	9:45
FCR Start Time:	6:53	FCR Stop Time:	16:50		Tot Hrs mns:	9:57
Use military time format 00:00					••••••	
,						
WEATHER CONDITIONS:		Partly Cloudy, 28 d	legrees in AM - 3	5 degrees	in PM	
DESCRIPTION: (work performance)	rmed deneral d	omments instructions to	contractor # of	crew me	mhers onsite	`
R&R set up four monitors. CVE four and expansion joints and instantial footings, with the 1" of snow and compaction of additional ABC material formed and poured. Pederson of switchgear and did general cleans indicates that there are two aux relatine Crew = 5, Newman = 4, R&F	talled the three N-3 added additional naterial. We will still ontinued installing up. Pederson provelays that are miss	S phases of 4" bus. Newman naterial before compacting the need approx three additional I the bus connections between vided me with paperwork and I sing and will be delivered to the	mixed up the mate lift. They then con lifts to get to the po the building section keys for the switche	rial, previou stinued delivi int where the ns, worked gear at app	usly placed arou very, placement ne breaker pads on panel wiring roximately 3:00.	nd the sprea and can be inside the Pederson
,						
IF WORKING IN ENERGIZED						
Dispatcher login, name and time:			_ 			
Dispatcher logout, name and time	e: Jim Bowı n ar	1700	IMMEDIATE CO	DDECTI	/E ACTION TA	WEN!
DISCREPANCIES: 3/2 - Issue with alignment of the horiz	ental bus insulator s	plative to the N.S. bus above it	Sent Roger an email			
offset 1'	Official bus insulator re	elative to the N-3 bus above it,	send e-mail authoriz			
3/2 - Two aux relays missing from Pe	derson Switchgear.		Pederson indicates t			
			PM's and will be ship	pped soor		
· ·						
11/30 - Identified an additional retaini Demo Plan			Will excavate to dete	ermine dime	nsions.	
12/15 - Excavated to locate the 46 kV			Sent e-mail to Roge	r F.		
didn't find them. Will try again. Actua DELAYS OR LOST TIME EN		deeder than design of new dank	<u> </u>			
CVE Line Crew has pulled off the site		t/baseplate issue is resolved.				
EQUIPMENT (working, deliv	ered, idle):					·
CVE fab crew: Portable toilet (2), forl boom truck, JLG (2), tool trailer. New	klift, 1 dumpster, offic				CVE Line Crew:	Pickup (2),
OSHA Recordable Safety In	cidents:			Reported	bv:	Time:
The state of the s		- · · · · · · · · · · · · · · · · · · ·	1		/:	
		<u> </u>	T i			



PROJECT NAME:	Third West	Sub - Rebuild	DATE:_	Saturo	Saturday, March 3, 2012	
PO & Work Order NO. :	300007805	0 / 10035803	MAIN CONTR	ACTOR :	Cache Valle	y Electric
Crew Start Time:	7:00	Crew Stop Time:	13:00	-	Tot Hrs mns:	6:00
FCR Start Time:	6:36	FCR Stop Time:	13:10	-	Tot Hrs mns:	6:34
Use military time format 00:00					-	
•						
WEATHER CONDITIONS:	<u> </u>	Overcast, 30 deg	rees in AM - 35 d	egrees in	PM	
DESCRIPTION: (work perfe						
R&R set up four monitors at 8:00 yesterday's compacted lift this m and compacted and Wilding test remainder of the ABc they had a	noming before Newma ed at 9:45. The comp	an started placing the next life paction failed twice and they	t. It had failed on F	riday. Tests it passed a	passed and th	ey placed
IF WORKING IN ENERGIZE	D SUBSTATION:					
Dispatcher login, name and time		3				1
Dispatcher logout, name and time						
DISCREPANCIES:	1		IMMEDIATE CO	RRECTIVI	E ACTION TA	KEN:
3/2 - Two aux relays missing from Po	ederson Switchgear.		Pederson indicates the PM's and will be ship		wn by Pederson	and RMP
				·		-
11/30 - Identified an additional retain	ning wall that is below gr	ade and does not show on the	Will excavate to dete	rmine dimens	sions.	_
Demo Plan. 12/15 - Excavated to locate the 46 k	•		Sent e-mail to Roger	F.	· · · · · · · · · · · · · · · · · · ·	
DELAYS OR LOST TIME EN		eeper man design of new bank			-	
EQUIPMENT (
EQUIPMENT (working, deli CVE fab crew: Portable toilet (2), fo boom truck, JLG (2), tool trailer. Ne	rklift, 1 dumpster, office				CVE Line Crew	Pickup (2),
OSHA Recordable Safety II	ncidents:		<u> </u>	Reported t		I Time:
COMA INCOMABIC Safety II	ioidelits.		<u></u>	coported t	- 	111116.
						





February 29, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. # RES 230661-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmentai, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 230661-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 230661-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

February 28, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

February 29, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
		umber	er Analyzed Volume Sampled		Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-022712 W	EM	870269	0.0900	914	ND	0.0047	BAS	BAS
3W-022712 N	EM	870270	0.0900	916	ND	0.0047	BAS	BAS
3W-022712 E	EM	870391	0.0900	913	ND	0.0047	BAS	BAS
3W-()22712 S	EM	870392	0.0900	913	ND	0.0047	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

DATA QA

RE			

Due Date: -> Due Time:

Contact

Phone Email Fax

Date

Time

Reservoirs Environmantal, inc.

Page

5801 Logan St. Denvm, CO 80216 • Ph: 303 084-1986 • Fax 303-477-4275 • Tell Free :668 RESI-ENV Pager: 303-609-2098 INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: Company ddrass: hona Faxc Cell/pegan Project Number and/or P.O. #: Project Description/Lacetion: 7.12 West Sub- (LMP) ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm REQUESTED ANALYSIS **VALID MATRIX CODES** LAB NOTES: PLM / PCM TEM RUSH (Same Day) PRIORITY (Next Day) STANDARD Air = A Bulk = B (Rush PCM = 2hr, TEM = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Soil = S Wipe = W Metal(s) / Dust RUSH 24 hr. 3-5 Day Swab = SW F = Food Quant Prior notification is RCRA 8 / Metals & Welding Drinking Water = DW | Waste Water = WW Long report, Point Count RUSH ___ 5 day ___10 day required for RUSH Fume Scan / TCLP O = Other . Age turnarounds,** Organics 24 hr. ___ 3 day ___ 5 Day "ASTM E1792 approved wipe media only" õ MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm 1, 7402. ISO-India E.coll O157:H7, Coliforms, S.aureus 24 hr. 2 Day OSHA Salmonella, Listeria, E.coli, APC, Y & M 48 Hr. _3-5 Day Mold RUSH 24 Hr 48 Hr 3 Day - Short report, "Turneround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional feet apply for afterhouse, weekends and holidays." - AHERA Special Instructions: EM Number (Laborator Date Time Use Only) DUST Collected Collected Client sample ID number (Sample ID's must be unique) MICROBIOLOGY hh/mm a/p 2/27/12 916 391 6 7 8 9 NOTE: REI will analyze incoming sample based upon information received and will not be responsible for arrays or omissions in calculations resulting from the inaccuracy of original data. By Signing client/conipany representative agrees that submission of the following sample analysis as indicated on this Chair of Cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitution and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitution and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitution and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitution and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitution and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitute and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitute and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitute and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitute and the constitution of cuglody shall constitute an analysical services agreement with payment terms of NFT 30 days fellows to constitute and the cut of the cut o Number of samples received: Fed Ex Date/Time: 2(2-7) Relinguished By: Sample Condition: On Ice Sealed Intact Laboratory Use Only Temp. (F°) Yes / No Yes / No YES / No 22512 Recaived By: Date/Time: Carrier: Results: Contact Contact Phone Email Fax Date **Tinia** Initials Phone Email Fax Date Time Initials

> 7932 760 7-2011_version 1

Conlact

Phone Email Fax

Date

Time

Initials

Initials

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C ∈ Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

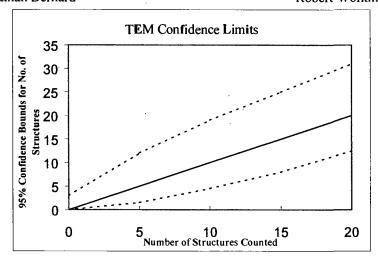
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

,	
Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RA
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	914
Date received by lab	2/28 12
Lab Job Number.	23066
Lab Sample Number	870 269

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	•
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	155B
Analysis date	2/29/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
Counting mles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	ructures	Dime	nsions	Identification	Mineral Class			1 = yes, blank =				
	J. J	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS	
A	F3-4	ND										-			
. ,	E3-4	20			P	ر مرک	A 60	2 notant	<u></u>	5%	bbus				
	C3-4	M			R	10	B 80	2 Low Emt		- s/o	Lelons				
	133-4	ND				{		6		.,					
	C3-3	20					4	B 2/29	/12						
B	K3-4	D						/ /							
	H3-4	ND					,								
	63-4	Z.									·	·			
	F3-4	M									•				
				,							-				

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI .
Instmment	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.011
Scale: !L=	0.28 um
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	连起来 多多数

Client :	RAL
Sample Type (A=Air, D=Dust):	TO A SEC
Air volume (L) or dust area (cm2)	90
Date received by lab	12/28/12
Lab Job Number	123000
Lab Sample Number:	370270

Fraction of primary filter used	
Total Resuspension Volume (ml)	· · · · · · · · · · · · · · · · · · ·
Volume Applied to eecondary filter (ml)	~

Analyzed by	HIE S
Analysis date	2/29/12
Method (D=Direct, t=(ndirect, IA=Indirect, ashed)	
Counting rules (ISO, AHERA, ASTM)	有野科 等
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	identification	Mineral Class	Mineral Class			1 = y	1 = yes, blank = no		
	J	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS	
A	1=4-6	M								<u> </u>					
	C4-6	QN,) mo	A	50%.	f	5%	lebre				
	B4-6	M				Pup	bu	A							
	E3-3	ND			·			, (: :	·		
	<i>C</i> 33	M						1B 2	29	12					
B	F3-3	WD						/1	/ /						
	E3-3	M													
	C3-3	2									·	<u> </u>			
	C3-4	M											-		
				·											

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Laboratory name:	REI
Laboratory marro.	
Instrument	JEOL 100 CX (N) S
madument	
	上海的陈竹林。 对 近 西 克
Voltage (KV)	中野野 100 KV
	CHARLES TO CHARLES
Magnification	(20KX) 10KX
Grid opening area	and the second second second
	上部海底建筑的时代或旅
(mm2)	0.011
	Substitution of a deal
Scale: 1L =	0.28 um
Scale: 1D =	0.0SS um
Primary filter area	The second of th
	385
(mm2)	**************************************
Secondary Filter Area	
(mm2)	一定时期的新疆。此类中国和阿特
	I sanchara barantang

Client:	Roll
Sample Type (A=Alr, D=Dust):	A A SE
Air volume (L) or dust area (cm2)	9(4)
Date received by lab	2/28/12
Lab Job Number:	23066
Lab Sample Number:	870 850

Fraction of primary (liter used		
Total Resuspension Volume (ml)		
Volume Applied to sacondety filter	 	

Analyzed by	
Analysis date	2/29/12
Method (D≖Direct, I=Indirect,	公司
IA≖Indirect, ashed)	一种,如果是是
Counting mles (ISO, AHERA, ASTM)	I A A I
Grid storage location	Mdnth Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Grid Opening St		No. of St	nuctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H2-3	ND			,					-				
	62-3	ND.			Por	OA	60%	ntent	5-	10/e	Lhors			
	F2-3	ND			R	o B	~A							
	EZ-3	ND			·		1/2			·				
	E4-1	MD				<	115	2/29/12						
6	F3-3	ND					/ /	, ,		-				
	E3-3	MD												
	C3-3	MD												
	B3-3	DN			-		<u>.</u>							
							·			<u> </u>	-			

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

	- <u> </u>
Laboratory name:	REI ALL
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX) 10KX
Grid opening area (mrt2)	3 0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	建设等等的进程证
QA Type	The state of the s

A
196
2/28/2
23066
870 312

Lab Campio Hambon	0.10
F-Factor Calculation (Indirect P	reps Only):
Fraction of primary filter used	
Total Resuspension Volums (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	56
Analysis date	2/29/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
Counting rules (ISO, AHERA, ASTM)	I HATE
Grid storage location	Mohth Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	nuctures	Dime	nsions	1dentification	Mineral Class				1 = y	es, blank	= no
0.10	One opening	Туре	Primary Total		Length Width		to minos ion	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-4	ND												
	H3-4	ND			Pu	~ X	70	6 contract	_5	-10	20 debris			
	F3-4	ND			P	5 B	600	burhant	9	-10	ho delan?			
	E3-4	ND				(,			<u>'</u>				
	C3-4	M						1	2/2	4/12			,	<u>. </u>
B	62-1	ND						/1	<i>,</i>	/				
	F2-1	ND						/						
	F4-4	M												
	Cyr4	M						,*						
				1.										

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, $s/mm^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2)}$

GO = TEM grid opening



March 1, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 230706-1 None Given

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 230706-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 230706-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given Client Project Description: Date Samples Received:

3rd West Sub - RMP

February 29, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 1, 2012

Client ID Number	Lab ID Nur	mber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-022812 W	EM	870717	0.1000	6 3 5	ND	0.0061	BAS	BAS
3W-022812 N	EM	870718	0.1000	6 3 5	ND	0.0061	BAS	BAS
3W-022812 E	EM -	870719	0.1000	6 3 5	ND	0.0061	BAS	BAS
3W-022812 S	EM	870720	0.1000	633	ND	0.0061	BAS ·	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

Reservoirs Environmental, inc.

					5801 Logan St Pags	L Denver, Ci ir : 3 03-60 6			303 90	54-1986	3 · Fax	303-4	77-427	76 •1	Toll F	88: 98	8 RES	SI-ENV	′	•					Page	_1_	_ of _			
INVOICE TO: (IF																			CO	NTAC	T IN			ON:						
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Address:				Add	lress:			Phone:								Phone:														
<u> </u>								<u> </u>			Fax: Cell/pager: 801 5/11-1035 Final Date Deliverable Email Address:											Fax:								
Project Number	randos D.O. B										Cellit	yager:	80	71	<u> 54</u>	<u>l-u</u>	23.	2_		Cell/pager.										
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PLM / PCM		RUSH (Same Da			STANDARD	<u> 1 a. r. r. was.</u>		. 612 gl	ÎΤ	:: KE	QUE	SIE	ואָ ע	YAL	101	<u>э</u> т	1 7	<u>' ;;</u>	. * 3.3		Air =		AIRD		ulk = B	+-'	_AD	NUTES:		
		- '	PCM = 2hr, TEI		_0774102140		ļ				. 1										ust =		-		aint = P	+-				
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Fume Scar		RUS	H 5 day	_10 day	required for RUS turnerounds.**		Count		11		Scar	Į				ll				<u> </u>	, ···u) = Othe		1000 - 111	+-				
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	7:H7, Coliforms,		24 hr.		_3-5 Day		Long report,	7402, SO-Indi	\$		Fume,	- 1		- 3	ફ		## F	£ 1			1									
Salmonella	a, Listeria, E.coli,	APC, Y & M	48 Hr.	3-5 Day			盲	. S	SS HA	욹	립			13	* 월			觮	1		-	} }		}	I					
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		apply for afternor	urs, weekends and	holidays.**		4484b	[≵કે	8	Total,	뒫	¥ à	0157;	‡ 1	4	ز ایز ا	: +	Ţ	- 1	Volume a		اع ا		.		.; W7	Fr.			
Special Ins	structions:						1 歳	AHERA, amt, Mic	7400A,	₽ ,	۲I	GANICS - MI	Ò	<u>;</u> ; <u>i</u> g.	<u>.</u>	E	Ílżi	1 1 1 1 1		> 8	Sog	Containers		J	_	EMI	Numi	ber (Laborator)		
}						i		· 🗲	1	DUST -	* S	X 3	8		8 8	100 G	ত	흵屋	- 1	출	ě	Š	Date	1	Time			e Only)		
Client sa	imple ID numb)9r	Sample ID's mu	ist be unique)	aries qui regial.	0.585 0.6735	클	Se E	2	DUST	RCRA 8,	8		MICE	ROBI	OLOG		_ 3	- 1	. Sam. (-)	Matrix	#	Collect mm/dd		Collected	7.	Š.H.			
1 3W-	0228(Z W	•					П	火							T			\top		635	A	П	212811	r		2	元	4717		
2 3W-	022812 N								Y					7 7				7 1 X		635							1	18		
3 3W-C	2282 E												71	1						635	1			_				19		
	0228125							J												633			1,				4	20		
5				·											1		17													
6						9,5 5 6 1 6 1 9,5 7 6 1 6 1						73 K			1 3	1				142	100		[] = 40 [[] = 40 [1 j			
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Number of	samples received:	14	1	(Additional	samples shall be	listed on	attac	hed to	ng fo	rm.)	انت		لنبان		·	1 11	أحنات					السنسا		انت		 -				
NOTE: R	El will analyze incamin as indicated on this Cha	g samples based upon	Information raceived	and will not be respo	onaible for errora or or with navment tenna of	niaalons in c	alculati a fallu	eer enoc	uiting fr	om me	inaccu	nacy ol	origina	al dan	B. 6y	aignIng month	ctiont;	comp	ny rep	rasantativ	e agre	ed the	LSubmiss	sion of	the following:	amples fo	or requi	aeted .		
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	•

ND = no structures detected

M = other structure associated with a matrix

·NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

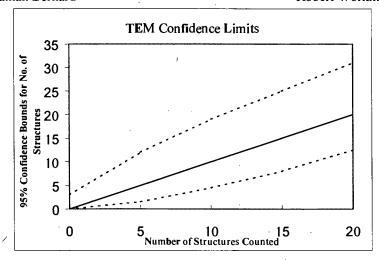
Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

	
Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	ØKX)10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filtar Area	
(mm2)	
QA Type	

Rank
A
635
2 29 2
230706
870717

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary IlltSr (ml)	

Analyzed by	JB
Analysis date	3/1/12
Method (D≖Direct, I≈Indirect, IA=Indirect, ashed)	P
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Data Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification Mineral Class				1 = y	es, blank	≖ no	
	<u> </u>	Туре	Primary	Total	Length	Width		Amphibole	c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K5-4	ND										٠.		
,	H5-4	MD				Pn	o A	80 /2 cm	Int	3	-5% del	ws		
	613-4	2				R	p B	50%	hif	3.	50 hodel	205		
	F-5-4	WD				·								
	E5-4	MD												
13	K3-4	CN					1	B 3/1	/12				·	
	H3-4	w			<u> </u>			77						
	HZ-4	ND					/					<u> </u>		
	HZ-1	W								1				
	612-4	NY									·			

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	ZOIX 10IX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

TEM ASDUSTUS Off	acture doubte
Client :	Rak
Sample Type (A=Air, D=Dust);	A
Air volume (L) or dust area (cm2)	635
Date received by lab	2/29/12
Lab Job Numben	233706
Lab Sample Number:	870718

Lab Sample Number:	15 707178
F-Factor Calculation (Indirect P	reps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter	

Analyzed by	JB
Analysis date	3/1/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Data Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification Mineral Class		Mineral Class			1 = yes, blank = no		
		Туре	Primary	Total	Length	Width	Identification	1 1 1		Sketch/Comments	Sketch	Photo	EDS	
A	F3-6	ND				ļ								
	53-6	ND				Pos	A	60 hounds	nt	3-5	La debus			
	F3-3	ND				P	n B.	20 hinh	at:	3-	% Jehrs			
	F5-4	ND					6			, ii				
٠.	155-4	MD			:		13	3/1/12						
B	F2-6	ND						///-				;		
	F2-3	M												
	132-6	M		·										
	B2-3	MD												
	C3-10	ND												

Reservoirs Environmental, Inc. TEAF Asbestos Structure Count

Prof. Proc. Co. Co. Co. Co. Co. Co. Co. Co. Co. Co	
Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV -
Magnification	60KX)10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
1	

Client:	Rak
Sample Type (A=Alr, D=Dusi):	A
Air volume (L) or dust area (cm2)	635
Date received by lab	2/29/12
Lab Job Numben	230706
Lab Sample Numben	570719

F-Factor Calculation (Indirect Preps Only):									
Fraction of pdmary filter used									
Totat Resuspension Volume (ml)									
Volume Applied to secondary filter (ml)									

	<u> </u>
Analyzed by	JG
Analysis date	3/1/2
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	7
Counting miles	AH
(ISO, AHERA, ASTM)	HH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

İ	Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = v	es, blank	= no
	O110	Grid Opening	Туре	Primary	Total	Lenoth		identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
	A	K4-1	NO					1	,						
	<i>,</i>	14-1	ND			En	ار ص	- 81	9/2 unha	F	3	5% del	11/5		
		614-1	ND			R	1	81	of on hu	1	3-	5% del	rs		
		F4-1	ND)			6	2				
	·	E4-1	ND						1	3	1/1/2				!
	3	1,3-10	ND							/	/				
		F3-6	ND						/						
	<u>.</u>	E3-6	ND												
L		C3-6	ND												
		133-6	W												

(mm2) QA Tyoe

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	ZOKX)10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client:	Rak
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	635
Date received by lab	2/29/12
Lab Job Number:	230706
Lab Sample Number:	570720

Analyzed by	JB							
Analysis date	3/1/12							
Method (D=Direet, I=Indirect, IA=IndIrect, ashed)	P							
Counting rules (ISO, AHERA, ASTM)	AH							
Grid storage location	Month Analyzed							
Scope Alignment	Date Analyzed							

F-Factor Calculation (Indirect Preps Only):									
Fraction of primary filter used									
Total Resuspension Volume (ml)	T .								
Volume Applied to secondary [litsr (ml)									

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification					1 = y	es, blank	= no
	Jone opening	Туре	Primary	Total	Length	Width	, additionation			NAM	Sketch/Comments	Sketch	Photo	EDS
A	H4-6	M												
	(246	M					A	80 Join	hut	3	-5% de	bu 5		l
	F4-6	MD				$n \Delta$	3	70% m	cut	3	50/ode	bus		ļ <u> </u>
	E4-6	ND					<u> </u>		6	s				
	C46	ND						4	1/2	3/1/	2			
<u>B</u>	613-3	MD							1	//			· .	
	F3-3	ND						,						
	F3-3	MD		·					<u> </u>					
	03-3	ND												
	1=4-3	ND.				, .								

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



March 2, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 230780-1 None Given

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 230780-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described In this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 230780-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given Client Project Description:

3rd West Sub - RMP

Date Samples Received:

March 1, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 1, 2012

Client	Lab		Area	Air	Number of	Analytical	Astrestos	Filter
ID Number	ID Number		Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-022912 W	EM	8710093	0.1000	923	ND	0.0042	BAS	BAS
3W-022912 N	EM	8710094	0.1000	921	ND	0.0042	BAS	BAS
3W-022912 E	EM	8710095	0.1000	921	· ND	0.0042	BAS	BAS
3W-022912 S	EM	8710096	0.1000	921	ND	0.0042	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

DATA QA

Due Date: 3 - 2 - 12 Due Time: 82da

RESTABLE RESERVOITS ENVIRONMENTAL. INC... 6801 LSgsn 8t. Denver, CO 80216 • Ph: 303 984-1986 • Pax 303-477-4278 • Tod Pres :866 R081-ENV

Page __1__ of ___[

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Company: V	LIK Emironne			· · · · · · · · · · · · · · · · · · ·						Contact Voice Roskeller								Contact								
Address: U	17 W 20005.		Add	ddrese:						Pimne:								Phone:								
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CHEMIS	TRY LABORATORY	/ HOURS: Weekdays: 88 RUSH 24 hr	m - Spm					1 []]]							j	J	Soil				pe = W	 	32i2		
				**Prior notification is	l	O'cent,			11	ļ					ı			wab				Food	 	-		
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite		F = Fiber
An	=	Anthophyllite	_	$\mathbf{B} = \mathbf{B}$ undle
C	=	Chrysotile	,	C = Cluster
Cr	=	Crocidolite		M = Matrix
Т	_	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

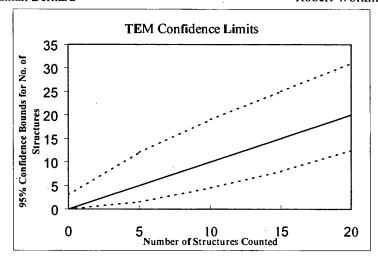
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	Reservoirs Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scale: 10 =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	n/a
QA Type	Not QA

TEN ASDESIOS OU	actare count
Client:	RBR
Sample Type (A=Air, D⇒Dust):	Air
Air volume (L) or dust area (cm2)	923
Date received by lab	03/01/2012
Lab Job Number:	230780
Lab Sample Number:	8710 93

Fraction of primary fitter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter	

Analyzed by	n.zimbelman
Analysis date	03/01/2012
Method (D=Direct, !=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-022912 W

Grid	Grid Opening	Structure	No. of Str	uctures	Ointe	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Çili	Cita Operang	Type	Primaty	Total	Length	Width	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	£3_6	40												
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	#3-3	41								ļ				
	42.6	YP												
	£2,(त्र) ~	A							

Reservoirs Environmental, Inc. TEM Astrestos Structure Count

Laboratory name:	Reservoirs Environmental, Inc.
Instrument	JEOL 100 CX N
Voltace (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	n/a
QA Tvpe	Not QA

Client:	R&R	
Sample Type (A=Air, D=Dust):	Air	
Air volume (L) or dust area (cm2)	9231	ځ۲_
Date received by lab	03/01/2012	3.1.
Lab Job Number	230780	_
Lab Sample Number	871094	

Lab Sample Number	87 1994
F-Factor Calculation (Indirect Prep	os Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	n.zimbelman
Analysis date	03/01/2012
Method (D=Oirect, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-032912 N

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class			_	1 = y	es, biank	= no
		Туре	Primaty	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
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	f2-3	40											·	
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	35,4	W				ہہ ک	A							

Reaervoirs Environmentai, Inc. TEM Asbestos Structure Count

Laboratory name:	Reservoirs Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L=	0.29 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	n/a
QA Type	Not QA

Client:	RSR
Sample Type (A=Air, D=Dust):	Air
Air volume (L) or dust area (om2)	921
Date received by lab	03/01/2012
Lab Job Number:	230780
Lab Sample Number:	871095

Lab Campie (Cambon)	1
F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secorulary filter	

Anaiyzed by	n.zimbelman				
Analysis date	03/01/2012				
Method (D=Dlrect, I=Indirect, IA=Indirect, ashed)	D				
Counting mles (ISO, AHERA, ASTM)	Ahera				
Grid storage location	Month Analyzed				
Scope Alignment	Date Analyzed				

Client Sample ID Number 3W-022912 E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
5.10			Primary	Total	Length	WMth	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
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Laboratory name:	Reservoirs Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
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Secondary Filter Area (mm2)	n/a
QA Type	Not QA

RBR
Air
921
03/01/2012
230780
871096

F-Factor Calculation (Indirect P	reps Only):
Fraction of primary filter used	
Total Resuspenskm Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	n.zimbelman
Analysis date	03/01/2012
Method (D=Direct, I=Indirect, IA=Indirect ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-D22912 \$

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class	188			1 = y	= no	
Gild	Grid Opening	Туре	Primaly	Total	Length	Width	Identination	Amphibole	С	NAM	NAM Sketch/Comments		Photo_	EOS
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	E3/6	त्रव												
	F3-6	للع					·							
	63-6	M												
	H3-6	44												
	X4.1	なな			-	eg (intox 1	1-3 / clas	N N					
j	H2-6	M							1.					
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Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

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micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



March 5, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. # RES 230882-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. Is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory Is currently proficient In both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed In general accordance with the appropriate methodology as stated In the attached analysis table. The results have been submitted to your office.

RES 230882-1 is the job number assigned to this study. This report Is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described In this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 230882-1

Client:

Client Project Number / P.O.: None Given

R & R Environmental

Client Project Description: Date Samples Received:

3rd West Sub - RMP

Analysis Type:

March 2, 2012 TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 2, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID N	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-030112 W	EM	871279	0.0800	1008	ND	0.0048	BAS	BAS
3W-030112 N	EM	871280	0.0800	1006	ND	0.0048	BAS	BAS
3W-030112 E	EM	871 2 81	0.0800	1006	. ND	0.0048	BAS	BAS
3W-030112 S	EM	871282	0.0800	997	ND	0.0048	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in rnm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

RES 230882

Pager : 303-509-2098

	INVOICE TO: (IF	DIFF	ERE	NT)									CC	ONTAC	T IN	FOR	MATION:	;			
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Address: 47 W 90005 #2	Address:					Phon			•							Phorw	:				
Sandy, Ut. 8-1070						Fax									-	Fax:					
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Project Description/Location: 30 West Sub-RMP						1	bue	<u>@</u>	<u>M</u>	21V	in	40	t								
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NOTE: REI Will analyze incoming samples based upon information received and will not be analyzed services agreed	responsible for errors or crnlesions in o	alculati	ons ras	uiting fi	rom tha	Inaccu	racy of	origina	l data.	By sig	ning cl	ant/ca	mpany re	presontali	/e agre	es lha	t submission	of the following s	amples fo	r requested	
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7-2011_version 1

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
Т	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

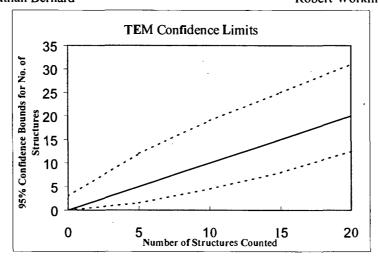
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI						
Instrument	JEOL 100 CX N S						
Voltage (KV)	100 KV						
Maanification	(20KX) 10KX						
Grid opening area (mm2)	0.01						
Scale: 1L=	0.28 um						
Scale: 1D =	0.056 um						
Primary filter area (mm2)	385						
Secondary Filter Area (mm2)							
QA Type							

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area	
(cm2)	1008
Data received by lab	3/2/12
Lab Job Number:	230882
Lab Sample Number:	871279

reps Only):	
<u> </u>	
	—

Analyzed by	-ik
Analysis date	3/2/12
Method (D=Direct, I=IndIrect, IA=Indirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	Dimensions Identification Mineral Class		Mineral Class				1 = yes, blank = no		= no
	,	Type	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K64	M												
	H6-4	ND				lna	A 70	1 indaces 5	7. de	br's				
	96-4	M				Pre	rB N	1 indact 5	n 1/2	- 3/2	/12	· ·		
	F3-3	M							/	,				
B	F26	M												-
	22-6	M												
	02-6	ND												
	c3-6	M												
							,							

Laboratory name:	REI
Instmment	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	386
Secondary Filter Area (mm2)	
QA Type	·

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1006
Date received by lab	3/2/12-
Lab Job Number:	230882
Lab Sample Number:	871280

Analyzed by	-lk
Analysis date	3/2/12
Method (D≖Direct, I=)ndirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Rasuspension Voluma (ml)	
Volume Applied to secondary filter	

Grid	Grid Opening	Stmcture	No. of St	mctures	Dime	ensions Identification		fication Mineral Class			1 = yes, blank = no			
0.10	Ond Opening	Туре	Primary	Total	Length	Width	·	Amphibole	· c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	54-6	M									·			
	C4-6	M			lne	v A	70% in	act 52.	lebi	2				
	B4-6	M			Pr	er B	M	Jenffer	3/	2/12	-			
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B	H5-4	M									V			
	43-4	2						:						
	F5-4	8									,			
	25.4	~Y												

Laboratory name:	REI
Instrument	JEOL 100 CX N &
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

	actaic Count
Client :	RHR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1006
Date received by lab	3/2/12
Lab Job Number:	230882
Lab Sample Number:	871281

F-Factor Calculation (Indirect Pi	eps O	nly):	
Fraction of primary filter used			
Total Resuspension Volume (mi)			
Volume Applied to secondary litter (ml)			·

Analyzed by	14
Analysis date	3/2/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
Counting rules (1SO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Stmcture	No. of St	ructures	Dimensions		Identification	Mineral Class				1 = yes, blank = no		
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	45-1	M												
	G5-1	M				Pre	r A 60	7 insact		7.0	ebris			
	25-1	MP				Pro	BAR	Unsact Imple	3/2	1/2				
	P4-1	NP							•					
	H4-1	ND												
В	64-6	8												
	1 ,	8												
	F4-6	M												
											•			

Laboratory name:	REI
Instmment	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) IOKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

TEM ASSESTED OF BUILD B COUNT										
Client :	R+R									
Sample Type (A=Air, D=Dust):	A									
Air volume (L) or dust area (cm2)	997									
Date received by lab	3/2/12									
Lab Job Number:	230882									
Lab Sample Number:	871282									
	1									

Analyzed by	-CK
Analysis date	3/2/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of St	mctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Lenath	Width	TO THE TOTAL OF TH	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H6-1	MD			-									
	96-1	9				Pine	, A 70	() infact	57.0	labi	25			
	F6-1	M				(ne	r B 60	() infact	5/1	leso	1.11	3/2/	14	
	26-1	2										7-7		
B	96-1	29						·						
	F6-1	M						:						
	96-1	M												
	C6-	M												
		•												

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $S/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



March 6, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report:

RES 230983-1 None Given

Project # / P.O. #
Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 230983-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 230983-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

Analysis Type:

March 5, 2012

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 6, 2012

Client ID Number	Lab ID N	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Astestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-030212 W	EM	871473	0.0900	874	ND	0.0049	BAS	BAS
3W-030212 N	EM	871474	0.0900	876	ND	0.0049	BA\$	BAS
3W-030212 E	EM	871475	0.0900	876	ND	0.0049	BA\$	BAS
3W-030212 S	EM	871476	0.0900	876	ND	0.0049	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

DATA QA

Due Date: 3-(0-(2 Due Time: 9:25

9801 Losan St. Derner, CO 60216 • Ph: 303 984-1986 • Fax 303-477-4273 • Toll Prec :866 RESI-ENY Pagar : 303-509-2098

RES 230983

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Security M. SELLUSS Production and the processor of the p	Address: U	1 W 9800 5 #Z	Ad	ldress;	٠			Pł	one:													
PRINCE CONTROL TO SET AND AND AND AND AND AND AND AND AND AND	S ₀	mdy W. 84070						1 1														
ASBESTOSCABORATORY HOURS: Weekdays: 7am - Tpm ASBESTOSCABORATORY HOURS: Weekdays: 7am - Tpm (Rush PCM - 2in, TEM = 4hr.) CHEMISTRY JABORATORY HOURS: Weekdays: 5am - 5pm Metaltics) Dusts CHEMISTRY JABORATORY HOURS: Weekdays: 5am - 5pm Metaltics) Dusts RUSH		•					·			_0/_	54	<u> -u</u>	<u>0 39</u>	<u>:</u>				Call/pag	or			
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite Cr = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

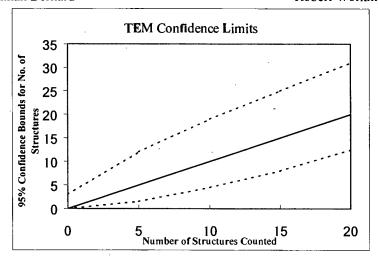
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	∕20kx 10kx
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Rap
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	874
Date received by lab	3-5-12-
Lab Job Number:	230983
Lab Sample Numben	871473

Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	Ahem
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	b
Analysis date	3.5-12
Analyzed by	AH

F-Factor Calculation (Indirect P	reps Only):
Fraction of primary filter used	Resuspension Volume (mi)
Total Resuspension Volume (ml)	
Voluma Applied to secondary fliter	

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class	·		·	1 = y	es, blank	= no
		Type	Primary	Total	Length	Width		Amphibole -	C:	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K5-1	ND												
	H5-4	14												
	45-1	M		PIR	A:	80%	intag		5%	del	PS			 1
	654	M		Pier	B:	70%	Vinta	ct 3-5	& d	ebr				
	65-1	M												
B	H4-6	CM												
	H4-3	MD				1		/						
	64-6	75			·									
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	Complete Service Service Service Con-
Laboratory name:	REI
Instrument	JEOL 100 CX N/S
Voitage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	Policial Car

Client:	- Carles
Sample Type (A=Air, D=Dust):	新加州
Air volume (L) or dust area (cm2)	1848
Date received by lab	3-542
Lab Job Number:	230983
Lab Sample Number:	87/974

F-Factor Calculation (Indirect Pre	ps Only):
Fraction of primary lilter used	
Total Resuspension Voluma (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	WAR!
Analysis date	85 12
Method (D=Direct, l=Indirect,	TANK TENER
IA=indirect, ashed)	
Counting rules (ISO, AHERA, ASTM)	Alexan
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class			·	1 = yes, blank = no		= no
		Туре	Primary	Total	Length	Width		Amphibole .	С	NAM	Sketch/Comments	Sketch	Photo	EDS:
A	F14-6	MD									·			
	64-6	MD									1			
	F4-6	2		Pie	A>	2 F	du inta	ct 3-5	2d	ebn	ζ			
	E4-6	20		Pie	رهم	_	A							
-	C4-6	2												
\mathcal{B}	H5-6													,
	65/6	2		·										
	F5-6	2						,						
	E5-6	M												
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Laboratory name:	REI
Instrument	JEOL 100 CX NYS
Voltage (KV)	100 KV
Magnification	∕20k X 10KX
Grid opening area (mm2)	0.011
Scale: 1L≖	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	MAN SAME AND A

Client :	Par Rain
Sample Type (A=Air, D=Dust):	型型ATEM
Air volume (L) or dust area (cm2)	184 DE
Data received by lab	325-12
Lab Job Number:	230983
Lab Sample Number:	841476

F-Factor Calculation (Indirect Preps Only):					
Fraction of primary filter tised					
Total Resuspension Voluma (mi)					
Volume Applied to Secondary filter (ml)					

Analyzed by	A
Analysis date	38-8-12
Method (D=D)rect, l=Indirect, IA=Indirect, ashed)	物的
Counting mies (ISO, AHERA, ASTM)	Ahora
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	sions	Identification	entification Mineral Class			1 = y	es, blank	= no_	
		Type	Primary	Total	Length	Width	,	Amphibole .	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H2-6	ND												
	LY-1	ND						1						
	K4-1	2		P	A:	70	6 into	ict 3-	5%	deb	as			
	H4-1	2		Piec	B-	100	do into	act 3-	5/00	lel	25			
	64-1	4		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \										
B	H4-10	アク												
	H43	2					X							
	K4-1	ND												
	1-4-4	4		·										·
							•				·			·

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20RX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: ID =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	经产品的

Client :	Ra R.
Sampla Type (A=Air, D=Dust):	型的 工程 工程 工程 工程 工程 工程 工程 工程 工程 工程
Air volume (L) or dust area (cm2)	846
Date received by lab	345-12
Lab Job Number:	230983
Lab Sample Number:	87 476

F-Factor Calculation (Indirect Pre	ops Only):
Frsetten of primary filter used	
Total Resuspension Volume (mi)	
Volume Applied to Secondary lilter (mi)	

Analyzed by	4.2B
Analysis date	3/6/2
Method (D=Direct, l=Indirect, IA=Indirect ashed)	在为
Counting rules (ISO, AHERA, ASTM)	Alex
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	pening Structure No. of Structures Dimensions Identific				Identification	Mineral Class				1 ≖ y	es, blank	= no	
		Туре	Primary	Total	Length	Width		Amphibole -	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-3	MD					.					·		
	H3-3	ND					o A	802 mb	A	5-5-	debois	•		
	43-3	W				Pu	03	70% in	Leut ?	5	/ Lebis			
	F3-3	UD										,	·	
	E3-3	M						1	5 3	(Col (2	2		,	
B	E4-4	M						/1	/	1		-		
	44	15						`						
	B4-4	M						·		. ,				
	F3-1	W		,										
							•				·			

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



March 7, 2012

Laboratory Code:

RES NA

Subcontract Number: Laboratory Report:

RES 231070-1 None Given

Project # / P.O. #
Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. Is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory Is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 231070-1 is the job number assigned to this study. This report Is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described In this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 231070-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP March 6, 2012

Analysis Type:

TEM, AHERA

Turnaround: Date Samples Analyzed: 24 Hour March 6, 2012 - March 7, 2012

Client	Lab	Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID Number	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading	
		(mm²)	. (L)		(s/cc)	(s/cc)	(s/mm²)	
3W-030212 W	EM . 871698	0.0800	966	ND	0.0050	BAS	BAS	
3W-030212 N	EM 871699	0.0800	965	ND	0.0050	BAS	BAS	
3W-030212 E	EM 871700	0.0800	974	ND	0.0049	BAS	BAS	
3W-030212 S	EM 871701	0.0800	974	ND	0.0049	BAS	BAS	

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity Average Grid Opening in mm² =

DATA QA

Due Date: 5 7 17
Due Time: 9400

REILAB RESERVOITS ENVIRONMENTAL, INC. 580 | Logen 8t DSnver, CO 80216 · Ph; 303 884-1986 · Fax 303-477-4275 · Toll Pree :888 RESHENV

RES 231070

Pagar : 303-509-2098

	INVOICE TO: (IF	DIF	FERE	NT)										CO	NTAC	T IN			TION:			
company: RER Environmental	Corrpany:							ave	, Ri	05/4	હાહ	1					Conte		المحال	in Korgi	5	
Address: 47W 9800 S #2	Address:					Pho						<i>'</i>					Phon					
Sandy Ul. 84070						Fax		V									Fax:					
	<u></u>					Cel	pager; Il Data E	801	5	-{ (-	<u> </u>	<u> 35</u>					Cet/p	pager:	80t	828-521	<u> </u>	
Preject Number and/or P.O. #:							gan															
Project Doscription/Location: 35 West Sub-Ruid								<u> </u>	<u> </u>		VIIC	7,00	m									
ASBESTOS LABORATORY HOURS: Weekdays: 7atn - 7pm					RI	EQU	STE	D AI	VAL'	YSIS	3.			e GH	0005	VAL	Jb N	MAT	RIX CC	DES	LA	B NOTES:
PLM / PCM / (EM) Rush (Same Day) PRIORITY (Next Day)	ay)STANDARD															Alr =				ulk = B	├ ──	
(Rusti PCM = 2tir, TEM = 6hr.)	Barry and Espain and Arrayan	4				1		11	-		- 1	11	- {)ust :				aint = P	↓	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 8pm - Mctal(s) / Duat RUSH 24 hr3-8 Day		1	1							$ \ $						Soli =	= S	,		ipe = W = Food	ļ	
DCDA 9 / Motole 9 Ministra	"Prior notification la		Quant			_		$\ \cdot\ $	8			11	اء					-		Waler = WW		
Fume Scan / TCLP RUSH 5 day 10 day	raquired for RUSH tumerounds.**	Į			 .	Scal			1				취임	3	Din pan	9		0 = 0		100 - 1111		
Organics 24 tir 3 day 5 Day		Point Count	¥ B			Metals	ŀ		Great		۔ اے		antification		"AS	IM E	1792 €	Bppro\	ved wipe	madia only**	ļ	
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - S	o m	ں ا	8 5	1		1.8€			đ	اءِ	Historian		9	ž.			T	Γ				
E.coli O157:H7, Collforms, S.aureus24 hr2 Day		٤	7402, SO-Ind	OSHA		Fume,			0	¥€			. Identification , Qu	5								
Salmonella, Listeria, E.coli, APC, Y & M48 Hr3-5 D	-	Langr	_ ≅	8	훘	P.			*	and	8		2 g	5			'	i			<u> </u>	
Mold RUSH24 Hr_	48 Hr3 Day5 Day		evel Vac	8	Respirable	Velding (_ .	. F		ð	ঠ ১	σ	E S	2				1			<u> </u>	
"Turnaround times satabilah a laboratory priority, subject to laboratory volume and apply for anarricurs, weekonds and holidays."	l are not griarimtead. Additional face	8	M. Co	7			ᇦ	7.1	4	8	7	اِ اِ	Ĭ.	į	eŭ.] .].	न्द्रप्रकट	
[18] [18] [18] [18] [18] [18] [18] [18]	<u> </u>	盲	AHERA, Jant, Mic	7400A,	Total	- Anal	8	201 0157:H7	8 8	7	É	<u> </u>	417	-	Volume	8	je je			ĺ	-	
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Client sample ID nurriber (Sample ID's must be unique	AND ARREST KIND VISION	ી∄	Semi	Ş	DUST	METALS RCRA 8.	g f	o [W]	MICR				-	Ę	ᇈ	Matrix	၂ ပ္သီ ၂	Co	illected mldd/yy	Collected	A 3 1 1 1 1	가장 결과 개인
1 3W-030312 W		╁	×	<u> </u>	 	<u>ac u.</u>	-	77				ÏΠ	T	·	966	Ā	_	3/0	2/12			1698
2 3W - 030312 W		3 , 8 .	ΙΉ			. 37	9 614 2		81.1 E		: 112	ş <u>ş</u>		1 1 1	965	Î		ار ا	1	**************************************	37	9
3 3W -030312 F	<u> </u>	***	+ -	+		<u> </u>	2	+	22:1		T T	714		<u> </u>	974	#	4	1	1			7-00
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NOTE: REI will analyze incoming samples based upon information received and wD not be	ре responsible for errors or omissions bi	calcula	ations re	sulting	from th											ive ag	reas th	al sub	mission o	i the following st	ımpiss far re	quested
analysis as indicated on this Chain of Custody station stitute an analytical services agre		ys, tal	ure to c	ompry \	win pay	yirlent 1	T T	y rest	at IA B	1.076	· · · · · · ·	ну 11108	1 531 5	wich state	<u> </u>			—-				
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Laboratory Use Oppy Received By:	Dale/Time: 3 (٠ ص	12	_	4	ر) Came	<u>د</u> ــــــــــــــــــــــــــــــــــــ	¥.	ے_) l		ł		Te	emp.	(F°)		Y	res / No Y	res / No	Yes No
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

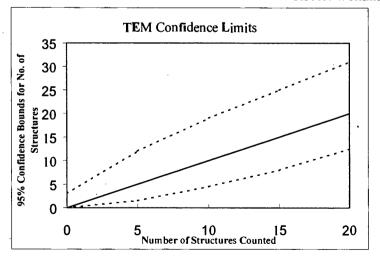
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX N 6
Voltage fKV)	-100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.2S um
Scale: 1D =	0.05S um
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	化精彩学集新程度

Client :	2AC
Sample Type (A=Air, D=Dust):	
Air volume (L) or dust area (cm2)	966
Date recaived by lab	3/0/12
Lab Job Number:	231070
Lab Sample Number:	871698

F-Factor Calculation (Indirect Pre	eps Only):
Fraction of primary fliter used	1
Total Resuspension Voluma (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	a
Analysis date	3/6/12
Method (D=Direct, I=Indirect,	10.00000000000000000000000000000000000
IA=Indirect, ashed)	
Counting rules	du
(ISO, AHERA, ASTM)	A Prince
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
O,i.d		Туре	Primary	Total	Length	Width		Amphibole -	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	1-10-6	M		·										
	96-6	NO		-		Pres	A 801	1.1 NOCA 50	de	bre				
	P6-6	M				Cn	er B ~A	Noct 50	Ven	3/	16/2		·	
	26-6	12						(/		. ′	,			
B	K4-3	W												
	HU-3	M												
	Ho-4	M												
	964	ND						·						
														,

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	新型的工作。 新型的工作的工程
QA Type	等於時間的

Client :	2-1-42
Sample Type (A=Air, D=Dust):	
Air volume (L) or dust area (cm2)	965
Date received by lab	3/4/12.
Lab Job Number	23/070
Lab Sample Number.	571699

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspension Voluma (ml)	
Volume Applied to secondary filter (ml)	

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	44
Method (D=Direct, I=indirect, IA=Indirect, ashed)	12 P. C. C.
Analysis date	3/6/12
Analyzed by	16

Grid	Grid Opening	Structure	No. of Structure		s Dimensions		Identification	Mineral Class			1 = yes, blank = no			
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H3-6	NO			·									
	93-6	in			pro	r A	80%, inta	u 57.de	bris					
	F3-6	120			Pres	B,	~ A _	con ffr	3/	6/12				
	F3-1	M					·	70		.,				
B	46-4	29												
	964	25												
	96-4	20												
	95-4	ND												
	·			·										

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filtar Area (mm2)	
QA Type	

Client:	RIR
Sample Type (A=Air, D=Dust):	4
Air volume (L) or dust area (cm2)	974
Date received by lab	3/1/2
Lab Job Numben	231070
Lab Sample Number:	S-71 700

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting mies (ISO, AHERA, ASTM)	44
Method (D=Olrect, I=Indirect, IA=Indirect, ashed)	
Analysis date	3/9/12
Analyzed by	

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	j
Total Resuspansion Volums (ml)	
Volume Applisd to secondary filter (ml)	·

Grid	Grid Opening	Structure			s Dimensions		Identification	Mineral Class				1 = yes, blank = no		= no
		Type	Primary	Total	Length	Width	i de i de i de i de i de i de i de i de	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-1	MD												
L	H21	ND.			K	1	4 6	50 Lecator	of 3	5-5	6 debis			
	F3-1	ND			F	me 1	B 6	Ohinhu	+ 3	-5%	le debres			
	E3-1	MD				'								
B	H3-4	MD						43	3/	7/12				
	63-4	√ \(\forall \)			 			- / /	/	7				
	F3-4	ND							!					
	62-3	ND												

Page	1	of		

Reservoirs	Environn	nental,	Inc.
TEM Asbes	tos Struc	ture Co	ount

Laboratory name:	1REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 XV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Typa	"哪些我们是是

Client :	RAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	974
Date received by lab	3/6/2
Lab Job Number:	231070
Lab Sample Number:	871701

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	ÁH
Method (D=Dlrect, I=Indirect, IA=Indlrect, ashed)	
Analysis date	3/7/12
Analyzed by	JB

F-Factor Calculation (Indirect Preps Only):						
Fraction of primary filter used						
Total Resuspension Volums (ml)						
Volume Applied to secondary filter						

Grid Opening		Structure	No. of Structures		Dimensions		Identificatian	Mineral Class			1 = yes, blank = no			
		Туре	Primary	Total	Length	Width		Amphibole	. с	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-4	ND			 	<u> </u>	4							
	144-4	ND			+) ma	A	70% int	n f		O/ Johns			
	644	M			. (100	3	70°/acake	nf	5	Toolebus			
	F4-4	M				<i>V</i>								
B	164-1	ND						b				· 		
	144-1	M						45	3/9/1	2				
	(94)	ND					·	/						
	F4-1	ND										-		
										,				

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{1000cc}$

Filter loading, $s/mm^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2)}$

GO = TEM grid opening